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Coffein and theobromin.—In a detailed account of his studies on the genera *Coffea*, *Thea*, *Theobroma*, and *Cola*, WEEVERS answers for the first time these questions:²⁵ Do coffein and theobromin arise in connection with the proteid metabolism of the plant or not? If so, do they arise through analysis or synthesis of proteids, and can they be used in proteid synthesis? He concludes that both are produced in consequence of secondary processes of dissimilation, that they are stored for a longer or shorter time, and then are again used in proteid synthesis. They constitute a very compact means of storing N, as they contain about 30 per cent. N as compared with 19 per cent. or less in proteids, and this is doubtless the reason why they occur so abundantly in seeds, though they may have also a protective function.—C. R. B.

Desert vegetation in South Africa.—The country of Welwitschia has always seemed fascinating to botanical travelers. Its accessibility is not fully realized; not only is it near the coast, but the heart of the desert is traversed by a railroad which has a station named Welwitsch from the abundance of the remarkable gymnosperm in the region thereabouts. PEARSON²⁶ has given an account of a journey through a part of German Southwest Africa, in which there is a description of the coastal strip with *Ancathosicyos horrida*, the Namib plains with Welwitschia, and the dry river beds with a less xerophytic vegetation closely resembling the Acacia vegetation farther east. Near Windhuk, the seat of government, there are Acacia park forests, in which *Acacia giraffae* is the predominating species.—H. C. COWLES.

Root-parasitism.—BARBER²⁷ has continued his studies of the haustorium of *Santalum album*. In the first paper²⁸ the early stages up to penetration were described; while the present paper deals with the mature haustorium. The penetration of the haustorium, its general structure, and its relation to the host tissues are first described. Then follow detailed descriptions of the cortex and "nucleus," the vascular system and its connections with the host, the character and development of the "sucker" with its double function of secretion and absorption, cases of irregular penetration, the general activity of the haustorium, and the interrelations of host and parasite. The numerous plates serve to make the descriptions remarkably clear.—J. M. C.

Taiwania.—HAYATA described this new genus of Coniferales from the Island of Formosa in 1906,²⁹ from a few dry branches bearing cones. Since that time he

²⁵ WEEVERS, TH., Die physiologische Bedeutung des Koffeins und des Theobromins. Ann. Jard. Bot. Buitenzorg 21:1-78 1907.

²⁶ PEARSON, H. H. W., Some notes on a journey from Walfish Bay to Windhuk. Kew Bull. 1907:339-360.

²⁷ BARBER, C. A., Studies in root-parasitism. The haustorium of *Santalum album*. II. Mem. Depart. Agric. India Bot. 1: no. 12, pp. 58. pls. 15. 1907.

²⁸ BOT. GAZETTE 40:159. 1905 and 42:317. 1906.

²⁹ Jour. Linn. Soc. Bot. 32:330-332. pl. 16.

has been able to secure more favorable material for study and has just published³⁰ his results. The genus belongs to the Taxodineae, and resembles *Cunninghamia* in the form of its cones, *Arthrotaxis* in its foliage, and *Cryptomeria* in its habit. A study of the anatomy of the leaf shows that in this feature it is intermediate between *Cunninghamia* and *Cryptomeria*, and perhaps nearest to *Arthrotaxis*. On the whole, the author concludes that it should be placed among Taxodineae between *Cunninghamia* and *Arthrotaxis*.—J. M. C.

Synopsis of Godetia.—W. L. JEPSON³¹ has published a synopsis of the North American species of *Godetia*, which are restricted to the Pacific coast and are represented chiefly in California. After some account of the history of the genus, early type specimens, concept of "species" in the genus, geographic distribution, and hybrids, the 17 recognized species are presented in two groups: the *Amoena* group, comprising the loosely flowered, freely branching forms; and the *Purpurea* group, comprising the spicately flowered, simple stemmed forms. The critical character of the study may be suggested by the statement that there are published 5 new species, 15 new varieties, 6 new forms, and 3 new combinations. The "little-known species, old and recent," number 11.—J. M. C.

Nitrogen fixation by algae.—After a valuable review of the literature of the subject, HEINZE³² gives an account of his investigation of the fixation of free nitrogen by algae. He had found earlier that fungi, apart from bacteria, do not possess this power. In this paper it is shown that some algae, *Nostoc* for example, possess this power to some degree; quantitatively the work of algae in this way is not very important. A much greater rôle is suggested by their symbiotic life with such nitrifying organisms as *Azotobacter*; the work of the latter is doubtless facilitated largely by the carbohydrate contributions of the algal symbionts.—H. C. COWLES.

Anatomy of Equisetum.—QUÉVA'S³³ studies on the histology of *Equisetum* lead him to the conclusion that secondary growth does not exist even in the nodes, where there is some appearance of cambial activity. Since secondary wood was common in the Calamites, and JEFFREY has observed a cambium in the cone of *E. hiemale* and *E. limosum*, it is probable that we have here to do with a vestigial structure. The cortex arises by tangential divisions of a superficial layer of cells. Differentiation of the xylem is exclusively in the centrifugal direction, and the protoxylem usually disappears owing to rapid elongation of the stem.—M. A. CHRYSLER.

³⁰ HAYATA, B., On *Taiwania* and its affinity to other genera. Bot. Mag. Tokyo 21: 21-27. pl. 1. 1907.

³¹ JEPSON, W. L., A synopsis of the North American *Godetias*. Univ. Calif. Publ. Bot. 2: 319-354. pl. 29. 1907.

³² HEINZE, B., Einige Beiträge zur mikrobiologischen Bodenkunde. Cent. Bakt. 16²: 640-653, 703-711. 1906.

³³ QUÉVA, C., Histogénèse et structure de stipe et de la fronde des *Equisetum*. Mem. Soc. Hist. Nat. d'Autun 20: 4-41. 1907.